7-2009

Refuge Update – July/August 2009, Volume 6, Number 4

U.S. Fish & Wildlife Service
July/August 2009 | Vol 6, No 4

RefugeUpdate

l Wildlife Refuge System

This is a centennial year for many refuges. In 1909, Theodore Roosevelt set aside land to protect birds like the ibis that were being plundred for their feathers by the millinery trade. (Thomas G. Barnes/ USFWS)

Centennial Celebrations

Theodore Roosevelt was exceptionally busy in 1909. He issued 17 executive orders creating bird preserves during a two-week period in February and added seven more the week before he left office in March.

Many of these early bird preserves became national wildlife refuges and are celebrating their centennials this year.

- **Hawaiian Islands National Wildlife Refuge** was established to protect seabirds – especially the Laysan albatross – that were being slaughtered for their feathers. Roosevelt had lobbied the state of New York "to forbid factories from turning bird skins into adornment, arguing that live birds in their element were infinitely more beautiful than dead birds upon women's hats."*

  More than 100 people gathered to celebrate the refuge centennial on Kaua'i, including community residents, Native Hawaiians, representatives of the Polynesian Voyaging Society, and the National Oceanographic and Atmospheric Administration. The refuge was recognized by the Hawai'i House of Representatives as the state's oldest national wildlife refuge protecting the fragile ocean ecosystems of the Northern Hawaiian Islands.

- **Deer Flat National Wildlife Refuge** (ID) – Just three days after water from the Boise River was released into Lake Lowell, President Roosevelt set aside Deer Flat Refuge as the 21st refuge. Although originally built for irrigation, Roosevelt realized that a lake in the desert would also be a wildlife oasis.

continued on pg 16

Chief's Corner

"I Love What I Do"

Greg Siekaniec

Last week, I received a letter – handwritten, in pencil – from a youngster in Florida. "To Whom It May Concern" it was addressed, and then went on to say, "I would like to request the free booklet about endangered species and wildlife refuges. I'm extremely interested in wildlife."

And the letter concluded, "I have also added 25 cents to pay for shipping and handling." A quarter fell out of the envelope.

I hope that Cassandra's sentiment is that of America's youth. I know we're working hard to interest youngsters in wildlife so they not only engage in wildlife conservation, but they one day join us in our effort to conserve the wild places we are so passionate about.

continued on pg 17

Young People Do Green

by Dennis Prichard

Bringing together 30 or so teenagers in one place creates as much energy as a wildfire, but when you select the best, brightest and most enthusiastic, that wildfire creates its own dynamic. And so it did at both the first Youth Forum for the Environment, held in 2008 at Sevilleta National Wildlife Refuge in New Mexico, and the second one, held this year at Wichita Mountains National Wildlife Refuge in Oklahoma. The forums were designed not only to teach young people about science on a refuge, but to encourage them to make conservation a way of life.

Young people were selected from Texas, Oklahoma, New Mexico and Arizona based on environmental projects they had completed in school, for local competitions or on their own. We were not disappointed in the number, quality or variety of the projects.

One school group had made its own school yard habitat while another studied the effects of forest clearing on two species of boreal squirrels. One group had monitored a stream ecosystem over several years and reported on its recovery, while one young lady solicited help from a host of others to protect habitat for an endangered salamander in Austin, Texas. A study of the playa wetlands in the Texas panhandle showed how they are vital to the lives of people in seven states, who live on top of the Ogallala Aquifer. The playas are the major recharger of the underground lake.

This was serious stuff!

Sohini Bandy, a Girl Scout from Austin, earned her Gold Award – equivalent to a Boy Scout's Eagle – by restoring a stretch of habitat for the Jollyville salamander. This project then earned more praises from Southwest Regional Director Dr. Benjamin Tuggle, outdone by a letter from then-President George W. Bush, thanking Sohini for her tenacity in getting the job done. Tuggle had lit the fire that sparked interest in organizing these youth events, providing funds from the regional office and coming each year to present certificates or listen to student presentations.

At Wichita Mountains

The 2009 event, called Nature Quest, was longer and sported an expanded theme. Twelve high school students, selected again because of environmental projects they had completed in their own communities, were challenged to take leadership roles by fostering an awareness and appreciation of nature in others – specifically 60 fifth and sixth graders from the area near the refuge in Oklahoma.

The older students spent the first few days of the week-long session mentoring the younger kids as they learned about safety in hot weather, good nutrition while camping and the ethics of proper refuge use. Activities like archery, fishing, aquatic studies, virtual geocaching for natural objects like bison wallows and a decomposing animal taught essential skills and knowledge about nature that many of the students had never experienced. The finale was a

continued on pg 19

Teens learn about prescribed burns and other habitat conservation techniques during a youth forum at Sevilleta Refuge, NM. (USFWS)

Refuge Update

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This newsletter is published on recycled paper using soy-based ink.

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Inside

Working Beyond the Boundaries

by Anne Truslow

Encompassing four refuges covering more than 1.6 million acres – much of which borders the city of Las Vegas – Desert National Wildlife Refuge Complex contends with a spectrum of management challenges. Because it is in the Mojave Desert, many of these challenges revolve around water quantity and quality that are critical to the survival of endangered endemic fish such as the Ash Meadows pupfish and the Moapa dace, as well as to the other wildlife and human populations of the region.

Until the recent economic downturn, Las Vegas Valley was among the fastest growing areas in the United States. Over the past two decades, development has crept up the two major highway corridors to the doorstep of Desert Refuge, which sits in a 7.5 million-acre landscape of public lands and benefits from a unique inter-agency collaboration – the Southern Nevada Agency Partnership (SNAP). SNAP includes the U.S. Fish and Wildlife Service, Forest Service, National Park Service and Bureau of Land Management (BLM).

SNAP addresses common issues, including access to the Southern Nevada Public Land Management Act (SNPLMA), a fund created from BLM land sales. The fund can be used to support a range of conservation and recreation purposes.

Yet, despite SNPLMA's extraordinary financial resources, the Service has received less relative funding than the other public land partners. Often, the Service simply doesn't have the staff and time to forge through the lengthy SNPLMA application process.

So, when the National Wildlife Refuge Association (NWRA) received nonprofit foundation funding to engage refuges with public and private partners to pursue landscape-level conservation, Desert Refuge Complex seemed a natural place to begin.

Ingredients for Success

The refuge complex had many of the ingredients of a successful "Beyond the Boundaries" focus area: a large landscape of outstanding natural resources, an enthusiastic and innovative project leader, support from the Service's regional office, many strong partner agencies and nongovernmental organizations (NGOs), and the need to assemble a vision that includes the work completed in its Comprehensive Conservation Plan. The achievable yet ambitious conservation vision may include, for example, planning with cooperating agencies for wildlife corridors.

The National Wildlife Refuge Association is working with Desert National Wildlife Refuge, NV, to create a larger landscape management plan within and beyond the refuge boundaries. (Evan Hirsche)

NWRA's Beyond the Boundaries initiative seeks to foster proactive landscape-scale conservation action by taking the good work being done on refuges, deepening existing partnerships or engaging new partners or Friends where needed, and offering capacity to realize measurable goals. That may mean identifying multiple sources of funding, developing informational materials, preparing research reports, or looking for innovative models of land conservation collaboration. The program takes a different form in every landscape, yet always relies on support and enthusiasm from refuge managers and staff.

Moving the Conservation Needle

When NWRA consultant David Houghton arrived in 2007 to discuss a partnership with Desert Refuge project leader Cynthia Martinez, he looked at her skeptical expression and said, "I know you associate NWRA with Friends groups and lobbying, but I am here to help you create conditions to move the conservation needle forward."

NWRA helped secure SNPLMA funding for construction of visitor centers at Ash Meadows, Desert and Pahranaget National Wildlife Refuges. All are now in the design phase.

NWRA is helping to forge a plan for how the visitor centers will relate to one another for a linked visitor experience. The plan will also connect the other public lands in the region. Ultimately, the Refuge Association hopes to help create an integrated system that will connect the local community to its refuges, engage volunteers and youth, and provide a world-class outdoor exploration experience for the millions who travel to Las Vegas each year.

continued on pg 16

Most Spectacular Bat Caves

Most bat populations are estimated because of the challenge of counting bats in flight or hanging in the caves. Wildlife scientists are now testing thermal infrared imaging as a more sophisticated method of counting bats. (William R. Gates/USFWS)

by Len Deibert

What's Bill Gates doing in a massive bat cave managed by Wheeler National Wildlife Refuge? No, not Microsoft's Bill Gates.

U.S. Fish and Wildlife Service biologist Bill "Gator" Gates is monitoring and conserving the endangered population of gray bats and Indiana bats, estimated at about a million, in four national wildlife refuges – all part of the Wheeler Refuge Complex in northern Alabama. All four caves – Fern, Sauta, Key and Cave Springs National Wildlife Refuges – are Priority 1 caves (the highest priority) for gray bat recovery. Fern Cave Refuge is the single most important gray bat hibernaculum in North America.

Some of Gates' friends think he's "crazy" for working with bats. But Gates believes "recovering a rare species is always rewarding"– even when that means wearing a hat and hooded rain jacket and being pelted by guano "like rain coming down" while gathering cave samples.

Wheeler Refuge manager Dwight Cooley says that measures to grow the bat population are succeeding. Since barricades were erected at Sauta Cave Refuge in 2004, the gray bat population there has grown from an estimated 250,000-300,000 to an estimated 400,000-450,000. The barricades originally were built to block people from entering Sauta Cave and disturbing the bat population – while permitting the bats easy access to and from their underground home.

Guarding Against WNS

Today, Fern, Key and Cave Springs Caves (along with Sauta) are closed to the public because of the threat to bats from white nose syndrome (WNS). While WNS has not affected bats on any of the refuges, all caving activity has been halted and the caves closed to prevent people from inadvertently carrying WNS fungal spores on their clothing or gear from infected caves elsewhere to non-infected ones.

The Service has called WNS "a wildlife crisis of unprecedented proportions" that has killed hundreds of thousands of hibernating bats from Vermont to Virginia. WNS is a white fungus found on the muzzles or other parts of a bat. It has a mortality rate of 95 percent and higher.

Although the syndrome has not reached Alabama, endangered species biologist Mike Armstrong, the Southeast Region WNS coordinator, says he "personally is scared to death" of the implications white nose syndrome could have for the endangered gray bat if the species becomes infected.

Most Spectacular Cave

When adults and young bats begin emerging from Sauta Cave in July and August, they are a visitor attraction. From a viewing platform built at a distance to avoid disturbing the bats, visitors can watch a steady stream of some 450,000 bats darken the twilight sky as they leave and return to Sauta Cave.

Fern Cave Refuge, located about 30 miles east of Huntsville, has been called the most spectacular cave in the United States. It's described as a vertical and horizontal maze more than 15 miles long with vertical drops of 450 feet. It contains the largest wintering colony of gray bats in the country.

Cooley says an estimated one million gray bats may be using Fern Cave as their winter home. Indiana bats also may use Fern Cave Refuge, according to Cooley, but there is "no documented proof."

Most bat populations are estimates because of the challenge of counting bats in flight or hanging in the caves – especially the large numbers that occur on Fern Cave and Sauta Cave Refuges. New estimates of the bat population are expected this fall.

Thermal Infrared Imaging

Wildlife scientists, meantime, are testing thermal infrared imaging (TIR) as a more sophisticated method of counting the bats. To capture and analyze data, they use a TIR camera and recorder, together with software originally developed for missile testing. Data gathered from the system will be

continued on pg 18

Way Beyond the Boundaries

Conservation of the brown bear and the caribou. Ecosystem biodiversity. Control of invasive species.

Sound like a list of priority issues for national wildlife refuges? It is indeed. But it is also a list of priorities for the Ministry of Natural Resources and Environment of the Russian Federation.

Scientists and wildlife managers from the United States and Russia have been meeting every two years since a cooperative agreement was signed in 1972. The June meeting in Moscow included a visit to the Astrakhansky Nature Reserve in the Volga River delta of southwestern Russia for Refuge System Chief Greg Siekaniec, Alaska Regional Director Geoff Haskett and Steven Kohl, chief of the U.S. Fish and Wildlife Service's Russia-East Asia branch of International Conservation.

The Americans were able to see firsthand the challenges at Astrakhansky Reserve: significant illegal fishing because of the valuable stocks of sturgeon and caviar; privately-owned cattle, sheep and goats grazing along the reserve's borders; and an invasive animal as destructive and difficult as nutria called a raccoon dog (it looks exactly as its name implies).

Siekaniec, Haskett and Kohl joined their Russian counterparts on the backwaters of the reserve assisting with colonial nesting heron, cormorant and egret surveys. Kohl was especially impressed with how well the Russian staff knew all the corners of their particular reserve. "They are bemused by U.S. staff mobility," said Kohl, "because they are more likely to spend their entire career on a single reserve."

Interest Launched in Alaska

Both sides expressed a desire to expand cooperation, especially concerning the effects of climate change on Arctic species and their habitats. Implementation of a U.S.-Russia agreement on managing the Alaska-Chukotka polar bear population, cooperation with zoos in captive breeding programs and joint botanical studies to conserve biodiversity and exchange seeds of rare plants were all topics of mutual interest discussed at the June meeting.

Refuge System Chief Greg Siekaniec and Steve Kohl, Division of International Conservation, visit Astrakhansky Nature Reserve in southwestern Russia. (Olga Repina/Russia Ministry of Natural Resources and Environment)

Siekaniec's interest in cooperation began while he was manager of Izembek National Wildlife Refuge where a formal "Sister Refuge" project was launched. Cooperation continued at Alaska Maritime National Wildlife Refuge when Siekaniec signed an agreement with Russia's Commander Islands Nature and Biosphere Reserve. Both areas include island ecosystems with large concentrations of seabirds and marine mammals. Native Aleuts in both countries depend extensively on these local resources, which are threatened by oil spills, climate change and invasive species. "Due to the cooperative effort in monitoring seabirds," says Siekaniece, "we have expanded our understanding of populations in the Aleutian and Bering Sea region."

Traveling East

In mid-July, 10 refuge biologists and managers traveled to the far northeast corner of China to visit seven Chinese refuges – including one near the border with North Korea. The United States signed a protocol on conservation with the People's Republic of China in 1986. The members of this group were selected for their expertise in areas of particular interest to their Chinese counterparts.

Kohl says the Chinese are interested in learning about habitat management, safety and law enforcement and employee skills. China and Russia are both discovering a surge of public interest in wildlife and refuges as people are able to move more freely around their own countries. China, like the United States, is finding development encroaching on the boundaries of its wildlife preserves. China is also working to manage or remove oil wells from protected areas.

The exchanges go both ways. A Russian delegation came to Boston last summer to learn about designing visitor displays with a conservation message. A group of Chinese natural resources officials visited Blackwater National Wildlife Refuge in Maryland in May to learn about wetland regulation, restoration and protection.

"What Russia does affects us because it has the largest land mass in the world," says Kohl, "while China has four times as many people as we do on the same amount of land. You cannot be broadly effective as a natural resources manager if you have no idea what is going on in other countries."

Messy Materials, Dancing Scarves and a Willow Fence

One little boy balances wooden bricks on a log. Several more youngsters twirl with scarves on an outdoor stage. An older brother clutches a toddler trying to balance on a fallen tree. Children sit on tree stumps, dig in the dirt and make designs with pine cones and shells while others build a miniature dam in a shallow stream.

It's all part of Nature Explore, a program designed by the Arbor Day Foundation and the Dimensions Educational Research Foundation to connect very young children with nature. Sheila McCartan, visitor services manager at Nisqually National Wildlife Refuge in Washington, learned about the concept during a workshop at the National Conservation and Training Center (NCTC) and knew instantly that "it went to the heart of what we need to do and could do on a national wildlife refuge." Now Nisqually Refuge is poised to be the first national wildlife refuge with a Nature Explore classroom. The Washington Conservation Corps is expected to begin installing plants and structures this fall.

Nature Explore spaces offer a variety of outdoor activities that help youngsters develop cognitive and physical skills as well as a familiarity with nature. Areas within the space are connected and divided with trails and paths, willow fences and fallen logs. There are multiple activity areas – building, music and movement, climbing, nature art, greenhouse, construction, gathering and messy materials. Each Nature Explore classroom is customized for the interests and setting of a particular refuge, park or school. The Nature Explore space at Nisqually Refuge will be geared for children from infancy through kindergarten. The Los Angeles public school district has signed up for 100 Nature Explore classrooms.

Making It Happen

Nisqually Refuge's Nature Explore classroom will fill 10,000 square feet next to the environmental education center, now under construction. The Dimensions Foundation created a concept plan and provided training in designing and operating the classroom for 40 people at Nisqually Refuge, including staff, volunteers, partners and local day care providers.

The refuge received a $28,000 Challenge Cost Share grant, matched with dollars and in-kind contributions by the Friends of Nisqually. NCTC, which was seeking a west coast model to complement the Nature Explore elements being added to its own day care center in Shepherdstown, WV, provided a one-time grant of $5,000 for blocks and other supplies. The NCTC site now has a greenhouse where children grow their own vegetables, logs that replace a plastic climbing gym and a sunflower maze.

McCartan bubbles with excitement. "We can now use this to reach a new audience." She envisions a Saturday morning Family Club with planned activities as well as a new place for preschool and day care center field trips. It will be open year round and will be a work in progress as families and staff learn new ways to use the space, which happens to be in an orchard.

"So what do we do when we have falling fruit?" wonders McCartan. "Using different senses, kids could smell the fruit, examine the fruit for bugs, or draw the decaying fruit. Maybe kids would even see deer or birds eating the fruit."

Learn more at www.arbordayfarm.org/ and www.dimensionsfoundation.org/. For information on future Nature Explore training, contact Connect People With Nature Training Coordinator Laura_Jones@fws.gov, 304-876-7499.

Nature Explore spaces offer a variety of outdoor activities that help youngsters develop cognitive and physical skills as well as a familiarity with nature. (Nature Explore)

Follow That Bird – at 4 a.m.

Imagine college students waking at 4 a.m. – willingly – to count tiny golden-winged warblers and take notes on their lifestyle. That's been the story for the past four summers at Tamarac National Wildlife Refuge in Minnesota for students of Concordia College biology professor Greg Hoch.

This year, one of those students, Tony Hewitt, was selected to present his research to Congressional staff as part of a Posters on the Hill event in Washington, DC, sponsored by the Council on Undergraduate Research.

The population of golden-winged warblers – approximately 80 percent of the global breeding population resides in Minnesota and Wisconsin – has been declining two to three percent every year since the mid-1960s, due in large part to habitat loss. "Since a large majority of the population breeds in the upper Midwest, Minnesota and Wisconsin have a stewardship responsibility for this species and maintaining the population within this core range is vital," says Tamarac Refuge biologist Wayne Brininger.

Students are helping with home range mapping or following a single bird with a GPS unit to determine the size of its territory, learning more about the birds' habitat use and evaluating detection distance, or how far a bird's call carries. Such information is included in formulas used to estimate population. The student researchers are also doing seasonal detectability studies to help pinpoint the best times to count golden-winged warblers during national surveys.

Brininger says Hoch's students are critical to such determinations. The work is labor intensive for six weeks in early summer, when undergraduates are available to assist with the research. "It's a good way for students to see how real science works," says Hoch. "The following winter we go to professional wildlife meetings where they meet other scientists and managers from across the state."

Concordia College undergraduate Tony Hewitt is one of several students researching golden-winged warblers at Rice Lake and Tamarac National Wildlife Refuges, MN. (USFWS)

Posters on the Hill

Hewitt developed a research poster from the warbler project, which was one of 50 selected in the national competition. "It was an amazing experience," said Hewitt, who had a chance to meet student researchers from around the country and talk with his Congressional representatives'staffs. "They all seemed to believe it was important research and they did all that any scientist can ask for – listen."

The research results are still new, but Brininger says the refuge is already able to manage prescribed burns and timber harvest more effectively. The refuge has numerous small forest openings that provide habitat for the warblers. "This is significant habitat that is often overlooked," says Brininger. "Warblers are using these patches in good numbers so we need to explore ways to maintain and manage that habitat."

This summer, Hewitt is taking the research one step further at Rice Lake National Wildlife Refuge (MN), where he is investigating how human actions – such as cutting forests – might benefit warbler populations. Michelle McDowell, wildlife biologist at Rice Lake Refuge, says, "Our partners, including Concordia College, the University of Minnesota and the Cornell Lab of Ornithology, are making great strides in understanding the limiting factors to golden-winged warbler populations."

Brininger believes the student research program definitely fosters career development in some students and gives them an opportunity to evaluate wildlife management as a career choice. "Through doing my research," said Hewitt, "I was able to find that I can do something I really enjoy and still make a difference in the world."

Around The Refuge System

Minnesota

The state of Minnesota and the Canadian province of Manitoba have created the newest international birding trail in North America, including viewing opportunities on five national wildlife refuges and two wetland management districts.

The Pine to Prairie Birding Trail in Minnesota and the Manitoba Birding Trail in Canada will jointly promote ecotourism and international conservation.

The 200-mile Pine to Prairie trail, which stretches from Fergus Falls to the Canadian border, is now connected with the Manitoba Birding Trail, completing a 500-mile birding trail. There are 45 viewing sites on the American side of the trail, including stops in Fergus Falls and Detroit Lakes Wetland Management Districts, and Rydell, Glacial Ridge, Tamarac, Agassiz, Hamden Slough National Wildlife Refuges and the Fergus Falls Prairie Wetlands Learning Center.

Visitors may see the American avocet, Henslow's sparrow, bobolink, marbled godwit, great gray owl and golden-winged warbler, among other species, including mammals. "The trail is a perfect opportunity for Tamarac Refuge to spread the land ethic beyond our boundaries," says Tamarac Refuge Manager Barbara Boyle. "We are able to showcase the successes of international conservation partnerships while promoting ecotourism and stimulating community economies." The interpretive signs along the trail present management strategies, including the captive breeding program for trumpeter swans and habitat restoration for golden-winged warblers.

Maryland

More than 80 students – from fourth grade through senior high school – helped plant cordgrass to restore marsh habitat on Barren Island at Blackwater National Wildlife Refuge in May. Perhaps most important to the students, they were planting cordgrass they had raised in their own school yards. They were also able to release striped bass into the Chesapeake Bay.

The plantings are a long-term project to save Barren Island, now divided into two because of erosion. The island has submerged aquatic vegetation and serves as a rookery for herons, egrets and at least one bald eagle. The island also protects people living on nearby Hooper Island. "If Barren Island completely erodes away," explains Blackwater Refuge Manager Suzanne Baird, "the people on Hoopers would be exposed to hazardous weather."

The erosion control project is a joint effort involving the National Aquarium in Baltimore, the Maryland Conservation Corps, Friends of the Blackwater and the Army Corps of Engineers. The Corps must regularly dredge the approach channel to Baltimore Harbor and needs a place to deposit the dredge material. "We are standing with open arms," says Baird. More than 40 acres have been restored in the last nine years, but Baird added, "We're only about half way down the island. We have lots to go."

Indiana

The front yard of the visitor center at Muscatatuck National Wildlife Center now features a rain garden, thanks to the Muscatatuck Wildlife Society (the refuge Friends group), several Master Gardeners and Girl Scout Winter Applewhite. In preparation for her Girl Scout Silver Award, Winter removed sod and planted the garden with native butterfly-attracting plants. She also drafted a brochure about the garden, which collects rainwater from the visitor center roof, channeling it to native

Cordgrass grown at schools near Blackwater National Wildlife Refuge in Maryland is brought to Barren Island, where it is being planted to control erosion and restore marsh habitat. (Suzanne Baird/ USFWS)

Boy Scouts help repair a remote log cabin at Desert National Wildlife Refuge in Nevada. (USFWS)

wildflowers for butterflies, insects and birds.

Florida

Finding it hard to get visitors and volunteers excited about pulling weeds? Six refuge visitor centers have installed touch screen kiosks to stimulate interest in taking a full online training program and volunteering for invasive plant management activities. The online training program (www.fws.gov/invasives/) has been available for some time. The kiosk uses photos, descriptive information and videos of enthusiastic volunteers to inform visitors about the importance of controlling invasives and the key role played by volunteers. The kiosks are located at J.N. "Ding" Darling, Merritt Island, St. Marks, Loxahatchee, Key Deer and Hobe Sound National Wildlife Refuges. Other interested refuges may contact Jenny_Ericson@fws.gov.

Nevada

A century-old cabin used by hunters, trappers, miners and probably bootleggers sits high in the Sheep Mountains of Desert National Wildlife Refuge. Kent Olson, a master carpenter with the Service, led volunteers and Boy Scouts up a six-mile trail to repair the historic cabin this spring. Service archaeologist Lou Ann Speulda-Drews praises Olson's work in matching the cabin's original notching.

This Hidden Forest Cabin is the third cabin to be restored on national wildlife refuges in Nevada. Restoration of the Longstreet Cabin at Ash Meadows Refuge and the Railroad Tie Cabin at Corn Creek on the Desert Refuge has been completed; stone masons are at work now on the oldest cabin, Walden Cabin at Pahranagat Refuge, which was probably built in the 1880s. Funding for the restoration comes through grants under the Southern Nevada Public Lands Management Act.

This fall, corrugated tin from William L. Finley National Wildlife Refuge in Oregon will be used to replace the roof at the Hidden Forest Cabin. While Olson is at work on the structure itself, archaeologists sift through the topsoil for artifacts that might help them reconstruct the history of the cabin. The Hidden Forest Cabin has been a destination for hikers.

The cabin was repaired in the 1920s using ties from the Las Vegas-Tonopah Railroad. The cabin was also renovated by the first refuge manager in 1940, for an office. Now the goal is to extend the cabin's life.

Idaho

Little Desert Detectives at Deer Flat National Wildlife Refuge learn about water by carrying it: second and third graders race to fill 50-gallon trash cans with water by carrying the same small buckets people would have used before indoor plumbing. The activity is part of a week-long Desert Detectives Day Camp. "A week with the same group of kids allows us to explore topics in-depth and to build a connection between kids and the refuge,"says Visitor Services Manager Susan Kain.

The youngsters take sensory hikes to experience a desert and learn how plants and animals adapt to survive. The last day of camp is devoted to stewardship – weeding, planting or painting nature trail signs – and singing "Cold, hot, hot or cold/Deserts sure are dry" to the tune of "Row, row, row your boat…."

Oklahoma

Wichita Mountains Wildlife Refuge– spanning more than 59,000 acres across the 600-million-year old Wichita Mountain range – has entered the age of energy conservation in a major way.

From 2007 to 2008, the refuge upped its recycling program – including paper, cardboard, plastic, tin, and even light ballasts – by 44 percent. The refuge encourages its visitors as well as staff to recycle by strategic placement of recycling receptacles. Last year, an aging asphalt/fiberglass roof was replaced with a more efficient PVC version. Now, the refuge is replacing its 1970s-era single pane windows with double pane Energy Star rated windows. To reduce energy costs, 436 incandescent lights were replaced with Energy Star fluorescent lights, cutting energy usage from about 40,000 watts to 9,478 watts.

Mineral Rights Just Below the Surface

by Len Deibert

More than 4,400 oil and gas wells reside on 155 national wildlife refuges, including Hagerman National Wildlife Refuge in Texas. (Sergio Piumatti)

It wasn't long ago when a refuge biologist or manager, faced with the rights of those who own the subsurface mineral rights, might think, "How do I protect wildlife habitat?" In fact, that was the first reaction of James Harris, supervisory wildlife biologist at the Southeast Louisiana National Wildlife Refuge Complex, as he confronted issues involving private oil and gas activities.

Today, Harris no longer wrestles with how to get a handle on mandates to protect refuge habitat and resources without infringing on privately-owned mineral rights. He's part of the answer – as a member of the U.S. Fish and Wildlife Service Interagency Oil and Gas Team. The team has developed an Oil and Gas Handbook; it's building a database on the number, status and location of wells on refuges and it provides training through the National Conservation Training Center. The course provides the legal, technical and administrative information needed to manage oil and gas activities throughout the Refuge System.

In a 2003 survey, the Government Accountability Office (GAO) estimated that more than 4,400 oil and gas wells reside on 155 wildlife refuges. As a result of its survey, GAO made a series of recommendations on how the Service could improve its management of oil and gas activities. One recommendation led to creation of the Interagency Oil and Gas Team, led by Janine Van Norman, the first national energy coordinator in the Refuge System. Van Norman calls the team members "exceedingly devoted and passionate individuals" who strive to help refuge managers and other staffers understand the Service's rights.

The training is held annually and since the first course in November 2005, about 150 people have been trained – not only Service personnel, but also others from federal, state and local agencies. The training is always on or near a refuge with ongoing oil and gas activities. "This gives students the opportunity to apply what they are learning in the classroom to actual examples in the field," according to team member Kelly Purkey, manager of Tensas River Refuge in Louisiana and the first full-time oil and gas specialist in the Refuge System.

Students also learn about contaminants, such as well stimulation chemicals that may be present at oil and gas facilities. They're taught how to recognize health and safety hazards. They're also trained to identify environmental compliance issues at oil and gas facilities.

The Payoff

The team's efforts are paying off. Van Norman says, "We're seeing good results as people in the field are getting a lot more confident about what they can request and require."

"Most operators understand it's in their best interest to find common ground," says James Harris. But that's not always the case. At times, refuge personnel turn to another element of their training – legal action. Harris says over a period of several years, the Service documented a number of chronic small incidents (small oil and brine spills of one/tenth of an acre or less) by one operator. But multiple violations added up to significant damage on the Southeast Louisiana Refuge Complex. The Service sued in federal court and the operator was fined $525,000, with the bulk of the money returned to the refuge for habitat restoration, according to Harris.

Using Negotiating Skills

The successes do not stop there. At the sprawling Hagerman National Wildlife Refuge between Texas and Oklahoma, Assistant Refuge Manager Rick Cantu successfully used negotiating skills he learned at the training. When interior

continued on pg 19

Preserve America Grants: History Revealed

"As we were sailing gently down beautiful, still, clear water, we heard the noise of a rapid into which we were about to fall…" Father Jacques Marquette provided the first written description of the Missouri River in 1673. From a new interpretive panel on the Arrow Rock Landing Trail on Big Muddy National Wildlife Refuge in Missouri, visitors learn that the ferocity of the river had not lessened when Lewis and Clark started their epic voyage up the river in 1804. Arrow Rock Landing also had a role in the Civil War as a crossroads for Confederate and Union troops.

All this history is displayed on five new panels along the trail, panels which also interpret the impact of these events on fish, wildlife and plant resources. The Manitou Bluffs Mid-Missouri Chapter of the Lewis and Clark Trail Heritage Foundation was instrumental in obtaining a Preserve America grant to fund the panels and a brochure. "The natural environment of the refuge now conceals the remnants of this historic era, but the signs and brochure help visitors imagine a time of manifest destiny," says Tim Haller, park ranger at Big Muddy Refuge.

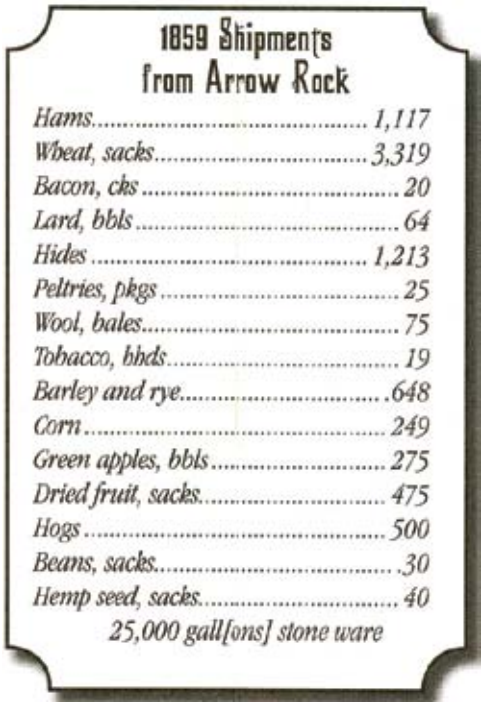
Seeing and Hearing History

On February 25, 1909, President Theodore Roosevelt designated 17 western reservoirs as preserves and breeding grounds for native birds, including Deer Flat Reservoir. In preparation for its centennial celebration in June, Friends of Deer Flat Refuge uncovered a collection of historical photos that volunteers scanned into a digital archive of 600 images.

Other volunteers began conducting oral history interviews with a long-time refuge employee, a fisherman who is the third generation in his family to commercially fish carp on the refuge, and several refuge neighbors. Nine interviews have been conducted so far, all to be permanently archived at the Idaho State Historical Society. The Preserve America grant also funded a historical interpretive pamphlet and 13 interpretive signs along a 1.3-mile historical trail dedicated in June.

Revolutionary Journeys

Menokin was the home of patriot Francis Lightfoot Lee, a signer of the Declaration of Independence. The Menokin Foundation owns the 500-acre property, more than half of which is in the Rappahannock River Valley National Wildlife Refuge in Virginia. In partnership with the refuge, the Foundation used a Preserve America grant to create lesson plans and field trip materials for area teachers.



Big Muddy National Wildlife Refuge, MO, remembers the days when the Missouri River was the Interstate highway of its day.

The teaching materials include six brick wall models for students to try their hand at mortar repair, a replica 18th century window and sash that can be disassembled, a model of the house itself, and nine interpretive panels about Menokin's architecture. By the end of this summer, 250 students will have come to Menokin for a field trip because of the Preserve America grant.

A workshop for teachers was held in summer 2008 and a week-long program for teachers is being conducted this summer with Rappahannock Community College. Teachers will visit different historic sites each day, including Menokin. All the lesson plans are available online, including videos about Lee, his home and Rappahannock River Valley Refuge.

Picnickers in 1939 use CCC or WPA picnic tables at Deer Flat National Wildlife Refuge, ID. (USFWS)

Where Does All the Water Go?

Using science to help with the complexity of managing water at the Arthur R. Marshall Loxahatchee National Wildlife Refuge, FL, helps protect species like the alligator. (Bill Swindamon)

by Matthew Harwell and Donatto Surratt

How do you manage water in a refuge that is three times the size of Washington, DC? This is a major question at the Arthur R. Marshall Loxhatchee National Wildlife Refuge in Florida. The health of Loxahatchee Refuge is one barometer of the health of the entire Everglades ecosystem. An enhanced monitoring program initiated in 2004 has led to direct improvements in water management and water quality on a refuge that is the northernmost component of the Everglades ecosystem.

More than 50 years ago, an extensive canal and levee system was built to provide flood protection and water supply for South Florida. As a result, less than half of the original Everglades remains. The Loxahatchee Refuge is basically a big impoundment with inflow structures at the north end bringing in floodwater from agricultural and urban runoff. At the south end are outflow structures that deliver water to east coast cities as well as to other parts of the Everglades. When water levels in the canal are higher than those in the marsh, water moves from the canal into the interior marsh. However, the quality of this runoff water is much poorer than rainfall, which had been the dominant source of water for the refuge.

Water with high nutrient content – especially phosphorus – is a pollutant in the refuge and throughout the historically nutrient-limited Everglades. The water quality problems over the last half century have harmed the Everglades, creating large areas of dense cattails which in turn impact the rest of the ecosystem.

Enhanced Monitoring

Loxahatchee Refuge established its enhanced water quality monitoring and modeling program to understand the linkages between canal inflows, water quality conditions inside the refuge and potential effects on the refuge ecosystem. Biologists began flying monthly helicopter missions to collect water samples for analysis. A water tracking network also was established to monitor where and when canal water enters the refuge interior. Monitoring probes continue to take near-continuous measurements of conductivity, or the amount of salts and other chemicals in the water.

Research has been assembled on the ecological effects of hard water on lower levels of the food web, including the native apple snail, the primary diet of the critically endangered Everglade snail kite. Finally, these efforts have been integrated with activities to develop and hydrodynamic and water quality models of the Loxahatchee Refuge; those models are useful for simulating water movement during high inflows and to help refuge management with their decision making.

Since the enhanced monitoring started, biologists have tracked water movement up to three miles into Loxahatchee Refuge's interior. Because data are collected hourly, biologists have tied water movement in the marsh back to the operation of the inflow and outflow structures. The monitoring has led to specific management adaptations – some already have been used with success – to minimize the impact of nutrient-enriched water.

The utility of the program was tested in early 2008 when a fairly large rainstorm was forecast. Water managers from the U.S. Army Corps of Engineers and the South Florida Water Management District – the two agencies that manage water in the Everglades – wanted to know how best to operate the pumps.

By applying results from the monitoring program, biologists recommended a detailed coordination of the canal structures focusing on the amount and duration of inflows and outflows. This maximized the amount of canal water that simply passed through the refuge canals without going into the interior. The intrusion of nutrient rich water from the canals into the refuge interior was reduced by more at least 50 percent.

It is research information and management decisions like this that are of interest to the federal court overseeing a water quality lawsuit in the Everglades. Regardless of this legal case, efforts will continue to refine management options for this valuable wetland resource.

Matthew C. Harwell is senior ecologist and Donatto Surratt is an ecologist/ GIS specialist on the DOI Everglades Program Team, A.R.M. Loxahatchee National Wildlife Refuge

Pilots over the Refuge

by Shawn Bayless

Aviation has enjoyed a storied history within the U.S. Fish and Wildlife Service.

In Alaska, aviation is the answer to challenging distances. The 50th anniversary of the annual Breeding Waterfowl and Habitat Survey in 2005 highlighted the importance of aviation in the lower 48 states and remains the world's most extensive wildlife survey.

The Mountain-Prairie Region encompasses more than 741,000 square miles in eight states, ranging from alpine meadows in the Rocky Mountains to lush native prairie in the Missouri Coteau and the fertile valley of the Red River Valley. Due to this diversity of habitat and expansive distances, refuge managers and project leaders often require the services of a few highly-trained aviators, most of whom are either biologists or law enforcement officers with collateral duty as airplane pilots.

Four Service employees in the Mountain-Prairie Region fly single-engine, fixed wing aircraft: a refuge law enforcement officer/ pilot in Huron, SD, a pilot/ biologist in Bismarck, ND, a special agent/pilot in Denver, CO, and a professional pilot in Lewistown, MT.

The two Dakota pilots primarily monitor wetland and grassland easements, assist with annual habitat surveys in the Prairie Pothole Region and proudly consider themselves 'duck people.' The special agent in Denver is responsible for a variety of wildlife and habitat related law enforcement missions, including aerial surveillance of oil and gas development impacts on migratory birds and endangered species.

The professional pilot in Lewistown spends most of his time supporting management activities on the Charles M. Russell National Wildlife Refuge (CMR), but also assists other Montana field stations with wetland and grassland easement surveillance, big game and habitat surveys for Tribal Assistance offices in Montana and Wyoming and wildfire surveillance.

Flying Low and Slow

At CMR, big game surveys begin shortly after hunting season ends in late fall. The pilot maneuvers 100-200 feet above the ground at relatively low airspeeds (60-70 knots) in the Missouri River Breaks to count and classify mule and white-tailed deer as well as elk. Information from these surveys has been paramount in CMR's efforts to manage a world-class big game population. Most law enforcement at CMR also requires the use of aircraft, especially for monitoring off-road vehicles and search and rescue operations.

Aircraft used for Mountain-Prairie Region missions vary widely. CMR recently contracted a master craftsman to rebuild a wrecked 1958 Piper Supercub. Piper discontinued production of Supercubs more than 20 years ago, much to the dismay of most wildlife professionals who appreciate its slow flight capability, enhanced observer visibility, crashworthiness and simple design.

Aerial Imagery and Telemetry

Aircraft in the Dakotas are equipped with belly-mounted cameras to record wetland habitat conditions each spring as part of the Refuge Four Square Mile Waterfowl Population Survey. Data are used by the Habitat and Population Evaluation Team (HAPET) in Bismarck to monitor breeding waterfowl numbers and develop models to track population and habitat changes over time.

Pilots currently are helping to determine the impact of wind generators on up to 200 hen mallards in the Kulm Wetland Management District in south-central North Dakota. Initial results will not be known until after this year's nesting season.

This rebuilt Piper Supercub is the preferred equipment for refuge pilots because of its slow flight capability, enhanced visibility, crashworthiness and simple design. (USFWS)

Shawn Bayless is a pilot/biologist working for HAPET in Bismarck, ND, and also serves as the regional aviation manager.

Grab the BBQ Tongs, Save a Wren

by K.C. Summers

It's not colorful. It doesn't fly very well. Its call sounds like a car engine that won't start. And yet the coastal cactus wren has sparked an extraordinary collaborative effort in southern California, as members of the San Diego National Wildlife Refuge, conservation groups, and various state and federal agencies join forces to save the iconic bird from extinction.

That explains why refuge manager Jill Terp and a group of about 40 biologists, scientists, and volunteers were out in the middle of a field last January, planting salvaged cholla cactus segments with trowels and long-handled barbecue tongs.

The coastal cactus wren has sparked an extraordinary collaboration in southern California. (Gary M. Stolz/USFWS)

Cacti are essential to the bird's survival – it nests in stands of prickly pear or cholla year-round, and the spines help protect against predators – but the habitat has been drastically depleted in recent years due to urban development and wildfire.

Working with a Developer

So when refuge biologist John Martin heard that a nearby stand of chollas was about to be bulldozed for a multipurpose trail, he rallied the troops. Refuge staffers worked with the developer to dig up the plants and transport them to a makeshift nursery in an old corral on the refuge office grounds.

Planting them was pretty easy, Terp recalls. "You just break off pieces, let the ends dry up a little bit, and stick 'em in the ground." (That's where the barbecue tongs come in.) After the cuttings become established, sometime this fall, they'll be transplanted onto dry, sunny slopes out in the sage scrub on the refuge. Then, if all goes well, the coastal cactus wren will have a few more places to call home.

The cactus restoration project is part of a large-scale plan by San Diego Refuge to help restore at least 13 endangered or threatened species in San Diego County, as well as an additional 42 species that are considered rare or in decline. The coastal cactus wren falls into the latter category.

The 8,500-acre San Diego Refuge, 35 miles east of downtown San Diego and just eight miles from the Mexican border, includes an astonishing variety of habitats – riparian woodland, coastal sage scrub, chaparral, oak woodland and vernal pools. But many of the species that were once common in the region – the coastal cactus wren, the Quino checkerspot butterfly, the San Diego horned lizard, the coastal California gnatcatcher – are now vanishing.

As coastal southern California's large number of plant and animal species faced continued threats from urban development and related ecological problems, environmentalists knew they needed to collaborate in order to fulfill their conservation mission.

In 1997, the Multiple Species Conservation Plan was born – one of the first such large-scale programs in the country, Terp says. It brings together conservation officials from San Diego County, the cities of San Diego and Chula Vista, and state and federal governmental agencies such as the U.S. Fish and Wildlife Service and the California Department of Fish and Game. Rounding out the group are commercial developers and members of the conservation community, including the Nature Conservancy and the Audubon Society. Establishment of the San Diego National Wildlife Refuge was one of the fruits of this plan.

Development and Wildfires

The cactus wren population, already hammered by urban growth, was further decimated when huge wildfires that raged in 2003 and 2007 eliminated important cactus wren habitat in San Diego and Orange counties. Wildfires in 1993 first harmed the population. But some scientists have detected population declines unrelated to wildfire; they are still searching for the reasons behind the most recent declines. Probable causes are weather change and West Nile virus, according to Scott Thomas, conservation director for Sea and Sage, a southern California Audubon chapter. There may be some additional habitat issues involved, such as the size and distribution of the cactus stands. The fact is, he says, there's a lot scientists just don't know.

But no one is giving up. "We're hopeful that we can get a handle on the population, who's there and how well it's doing, and start searching for the cause of the decline," Thomas says, adding that the bird lends itself well to research. "It's noisy, it's obvious and it has a small territory."

continued on pg 18

Connecting Students and Conservation

Student Conservation Association intern Joshua McBee worked with the Sewee Association/Sewee Visitor Center, part of Cape Romain National Wildlife Refuge in South Carolina. (Ashley Hansen)

by Aaron Shwom

Almost every weekend last summer at Back Bay National Wildlife Refuge in the heart of Virginia Beach, VA, Student Conservation Association (SCA) intern Sandra Jones, a biochemistry major at Spelman College, planned, organized and delivered formal interpretive programs about threatened loggerhead sea turtles, which generally deposit two to eight nests there each year. She focused her programs on the turtles' lifecycle and migratory and nesting patterns and on the refuge's monitoring and protection program.

When she wasn't making that direct contact, she was revitalizing visitor center displays that brought visitors back into the visitor center, where they could get more information about the refuge.

On June 1, Gabe Harper, a psychology major at Morehouse College, took her place, helping with interpretation and environmental education planning and implementation. Harper joined SCA because he has "always had a love for wildlife and things outside and I thought it would be a good experience since I've never left Georgia."

Careers in Conservation

The nonprofit SCA is a nationwide force of college and high school students. For more than 50 years, its hands-on practice of conservation service has helped develop a new generation of conservation leaders. The association's Conservation Internship Program often gives students their first taste of career opportunities in natural resource conservation and biological sciences as well as environmental education, interpretation and cultural resources.

As it seeks both to diversify its workforce and offer summer employment to youth, the Refuge System is working more closely with the SCA in the Northeast Region to recruit young people from ethnically, racially and economically diverse backgrounds.

After a week-long orientation, 30 summer interns began their work in the region around June 1. They are filling biological or visitor services needs, from Moosehorn National Wildlife Refuge in Maine, where the intern will spend at least 70 percent of the time involved in an invasive plant study and monitoring, to Canaan Valley National Wildlife Refuge in West Virginia, where the SCA intern will help monitor dragonflies and small mammals, to Erie National Wildlife Refuge in Pennsylvania, where interns will help plan events for the refuge's 50th anniversary celebration.

"SCA interns help us deliver high quality visitor services, especially during the spring and summer, when we face a bigger workload and more visitors," says Walt Tegge of Back Bay Refuge.

Recruitment Is Up

With students' greater "green" awareness, SCA has seen its applicant pool increase by 40 percent since last year. On average, SCA places 4,000 interns and high school students annually across the country.

"SCA reviews applicants first, based on their interests and what they want to do," says Abraham Gates, SCA's admissions placement manager. SCA works with the supervisors so interns have the needed skills, but also that they have room for growth in a position."

The Association provides not only conservation interns, but also corps and crews. Costs are shared between SCA and the individual refuge. SCA interns serve for three to 12 months and can start any day of the year. Most have or are pursuing college or graduate degrees. Interns and corps members typically earn $75-$160/week, an AmeriCorps Education Award, have their travel covered and housing provided. If the refuge can't provide housing, SCA helps locates local housing.

Crew members are high school students, who earn volunteer hours for their work and pay for their travel and personal gear. Contact SCA's partnership team at 888-722-9675 extension 635, email, Agency-help@thesca.org or visit www.thesca.org/partners/request.

Aaron Shwom just completed an eight-month internship with SCA's Partnership Department.

Centennial Celebrations — *continued from page 1*

The refuge hosted a grand Centennial Festival in June including an art contest, guided bird walks, a barbecue with live music and the opening of a new historical trail (see page 14).

- **Cold Springs National Wildlife Refuge (OR) –** In the early 1900s, people had begun to recognize that populations of migratory birds were declining. Cold Springs Refuge was established as a preserve and breeding ground for native birds, overlying a reservoir which is the primary source of water for local agriculture.
- **Minidoka National Wildlife Refuge** (ID) – More than 100 years ago, settlers on the Oregon Trail passed just south of the refuge. Some crossed on an alternate route through the refuge. Overlaying a reservoir called Lake Walcott, the refuge has now been named an Important Bird Area of Global Importance by the American Bird Conservancy.
- **Culebra National Wildlife Refuge** (PR) – More than 50,000 seabirds of 13 species make their way to this Caribbean island where the United States established a naval base at the end of the Spanish-American War; the site was used for gunnery and bombing practice until 1975. About a quarter of the Culebra archipelago is now included within the refuge.
- **Farrallon National Wildlife Refuge** (CA) – Only 211 acres, this refuge off the coast of San Francisco hosts the largest continental seabird colony south of Alaska and the world's largest breeding colonies of ashy storm petrel, Brandt's cormorant and western gull. The refuge is closed to visitors to avoid disturbing the wildlife, but there are natural history cruises from San Francisco.
- **Alaska Maritime and Yukon Delta National Wildlife Refuges** (AK) – Four groups of islands that are now part of Alaska Maritime Refuge were established as refuges in February, 1909. In 1980, the Alaska National Interest Lands Conservation Act (ANILCA) combined 11 previously established refuges with 1.9 million acres of additional lands to form Alaska Maritime Refuge – a total of three million acres.

  Alaska Maritime and Yukon Delta Refuges are jointly celebrating their centennial with a year of special events. Centennial photo exhibits have been mounted in Homer for the Shorebird Festival, in Anchorage during Ocean Fest and in Bethel in the late fall. Individual islands will be highlighted during the festivities. School programs have featured Otter and Walrus Islands (two of the original 1909 "reservations") while the Sitka Conservation Society and Allen Marine co-hosted boat tours to St. Lazaria Island.

Historians have noted that the London Commercial Sales Rooms sold 1,608 packages of herons' plumes in 1902, each weighing 30 ounces. It took four herons to make a single ounce of plumes. (Gary Stolz/USFWS)

Theodore Roosevelt knew very well the importance of what he had done, writing that, "The progress made in the United States, of recent years, in creating and policing bird refuges, has been of capital importance….to lose the chance to see frigate-birds soaring in circles above the storm, or a file of pelicans winging their way homeward across the crimson afterglow of the sunset, or a myriad of terns flashing in the bright light of midday as they hover in a shifting maze above the beach – why the loss is like the loss of a gallery of the masterpieces of the artists of old time."*

*Eric Jay Dolin, *Smithsonian Book of National Wildlife Refuges* (Smithsonian, 2003).

Working Beyond the Boundaries — *continued from page 3*

Additionally, NWRA is working with the refuge to build on its Comprehensive Conservation Plan to create a larger landscape management plan within and beyond the refuge boundaries. NWRA is helping to engage with partners such as The Nature Conservancy, Outdoors Las Vegas Foundation and the State of Nevada to seek funding for a plan that would consider future needs for wildlife corridors, water and adaptive management for climate change.

"NWRA gave us capacity where we really needed it, and has helped us identify and develop some new ways to collaborate with public agencies and NGO partners," says Martinez. "The Refuge Association bridges the occasional gap between public, private and NGO partners."

NWRA also has Beyond the Boundaries initiatives at Oregon Coastal Refuge Complex, Crystal River and Chassahowitzka National Wildlife Refuges in Florida, Chesapeake Marshlands Refuge Complex in Maryland, and Horicon Marsh National Wildlife Refuge in Wisconsin. Four other focus areas are in development.

Anne Truslow is vice president, Strategic Programs & Development, National Wildlife Refuge Association. For more information, contact her at 202-292-2423 or atruslow@refugeassociation.org.

Better Fire Management

Fire management is a specialized field, but fire professionals also have a role in meeting the general mission of each refuge. A Line Officer Team (LOT) has been formed to improve coordination of fire management activities and issues within the National Wildlife Refuge System. The newly created LOT will help establish and maintain consistent nationwide policies, work to improve management of wildfires and provide an effective communication mechanism within the Refuge System.

A Line Officer Team (LOT) has been formed to improve coordination of fire management activities and issues within the National Wildlife Refuge System.(USFWS)

The LOT works directly with the National Fire Leadership Team (NFLT) to promote safe and effective fire management. At the initial meeting in San Antonio, Texas, in April, the team established several priorities, including identifying strategies to improve communication and teamwork in the field; engaging line officers in budget decisions early in the process; and evaluating current levels of training as well as the need for improved compliance with the National Environmental Protection Act (NEPA).

As a start, LOT is highlighting the importance of sending fire professionals to the Refuge Management Academy and providing them with a greater range of refuge experiences. Similarly, LOT is working with managers to identify the skill sets needed to better administer a fire program. LOT is also working with the NFLT to improve the Service's ability to facilitate fire contracts and purchases during large fires.

Field stations are encouraged to contact their regional representative with suggestions:

Region 1	Forrest Cameron (Chair)
Region 2	Chris Pease
Region 3	Scott Kahan
Region 4	George Constantino
Region 5	Virginia Rettig (Vice Chair)
Region 6	Craig Mowry
Region 7	Joanna Fox
Region 8	Kevin Foerster
Fire Mgt Branch	John Segar
NFLT	Steve Jakala
NWRS	Andy Loranger

Chief's Corner

— *continued from page 1*

Cassandra's letter arrived just after I returned from an international mission to Russia. There, the U.S. Fish and Wildlife Service continues to provide technical assistance. Through its rapidly growing friends movement, Russia is working to motivate its own citizens to become much more engaged in wildlife reserves and environmental issues.

And if those images aren't enough, let me tell you about Bill Gates – wildlife biologist at Wheeler National Wildlife Refuge in Alabama. He's working on gray bat recovery in what is almost the epicenter of such work, wearing a hat and hooded rain jacket and being pelted by guano while he gathers samples from Fern, Sauta, Key and Cave Springs Refuges – all Priority 1 caves for gray bat recovery. His friends think he's crazy for working with bats, but Bill explains, "Recovering a rare species is always rewarding."

What do all of these images have in common? Dedication, passion, selflessness, an enduring sense of wonder about our natural resources. Sure, all those apply. But there's one quality – even more than these – that marks the people who work for, and work with, the National Wildlife Refuge System. That's an understanding of what's really important in life.

Some weeks ago, Edwin Drummond – called Drum by all who knew him – retired after 60 years of working at Wichita Mountains National Wildlife Refuge in Oklahoma. He was 81 when he retired, having lived all of his life on the refuge where his father was on the maintenance staff – a position that Drum took up.

When someone asked him some years ago why he was still working, Drum – never a talkative fellow – put it simply: "I like what I do. And what I do is important."

Cassandra from Florida knows that. So does Bill Gates at Wheeler Refuge. So does the delegation we met in Russia. Now it's our job – our mission – to engage our constituents in such a way that they feel that what we do is important. I am glad you are joining me in that mission.

Honors

Congressman John Dingell of Michigan received the International Canvasback Award during a meeting of the Migratory Bird Conservation Commission, of which he has been a member for nearly 40 years. Congressman Dingell provided leadership in passing such landmark legislation as the National Wildlife Refuge Administration Act and the Clean Water Act. He is a founding member of the Congressional Wildlife Refuge Caucus and a catalyst for the creation of the first wildlife refuge that spans national borders – the Detroit River International Wildlife Refuge.

Congressman Dingell was nominated for the award by Ducks Unlimited, Inc.

Two Awards

Two stellar visitor services managers in the National Wildlife Refuge System have been honored by the American Recreation Coalition, **Cindy Samples** at Upper Mississippi River National Wildlife Refuge (IL, MN, WI, IA) and **Kelly Blackledge** at Tamarac National Wildlife Refuge (MN).

Congressman John Dingell of Michigan has been recognized for his major lifetime contributions to waterfowl conservation.

Samples received the Beacon Award for her creative use of new technology to help visitors enjoy the 261-mile Upper Mississippi Refuge. Samples was among the first to develop cellphone tours, geocaching and podcasts to help refuge visitors discover and understand the refuge. Samples is currently partnering with Sacramento National Wildlife Refuge to encourage refuge visitors to become geocachers and carry "travel bugs" from Minnesota to California, visiting refuges along the way.

The 2009 Legends Award winner, Kelly Blackledge, is being honored for developing partnerships and environmental education programs at Tamarac Refuge. Under her watch, the Detroit Lakes Festival of the Birds in May has grown to 300 participants from most of the 50 states. Blackledge founded Natural Innovations, a community organization helping people understand the connection between their health and

Most Spectacular Bat Caves — *continued from page 4*

compared with visual estimates made by experienced biologists.

Cooley and Gates emphasize that the bats are an important component of the unique karst ecosystem. In one night, for example, a single bat might eat 3,000 insects, including mosquitoes and moths. Bat droppings are a major source of nutrients for many organisms found only in caves. In the western U.S. and in other parts of the world, some bats pollinate plant life.

"We are just beginning to scratch the surface of the diverse life forms. There's a lot out there we can learn," says Cooley. Adds Gates: "We have a moral, ethical and practical responsibility to assist in the protection of a species."

Len Deibert is a freelance journalist in Washington, DC.

Grab the BBQ Tongs, Save a Wren — *continued from page 14*

Plus, "it's just such a cool bird," enthuses Trish Smith, a senior ecologist with The Nature Conservancy in Orange County. "The best thing of all is its song. It's one of those birdsongs that's often used in Hollywood movies – kind of a chuck-chuck-chuck sound. It's very distinctive."

The bird even has its own support group, the Coastal Cactus Wren Conservation Network, established last year by The Nature Conservancy and made up of wildlife agencies, public and private land owners, scientists and volunteers. "The wildfires really became an impetus for people to start thinking about working together," Smith says.

The group works closely with the San Diego Refuge, focusing on on-the-ground restoration and more consistent monitoring of the species. Its work is essential to the refuge's mission, Jill Terp says. "Because these conserved lands are so spread out, we need to talk to one another, share information and help each other," she says. Only through their combined efforts, she says, does the coastal cactus wren stand a chance.

K.C. Summers is a freelance writer in the metropolitan Washington, DC, area.

the environment. In 2008, she also won the Detroit Lakes Chamber of Commerce Tourism Award for promoting activities in the area.

This year's Federal Land Manager of the Year is **Scott Glup**, project leader at Litchfield Wetland Management District in Minnesota. Glup is a firm believer in partnerships. He worked with a local Boy Scout Troop working to earn its 50-Miler Award, which requires canoeing or boating, hiking, trip planning and a 10-hour outdoor service project. The Scouts worked more than 200 hours removing invasive buckthorn and other undesirable trees on 58 acres of grassland. By working with the Scouts, Glup fostered a spirit of stewardship in young people.

Scott Glup, project leader at Litchfield Wetland Management District, MN, is the 2009 Federal Land Manager of the Year.

Secretary of the Interior Ken Salazar celebrates with Beacon Award winner Cindy Samples (Upper Mississippi National Wildlife and Fish Refuge) and Legends Award winner Kelly Blackledge (Tamarac National Wildlife Refuge, MN). (USFWS)

Young People Do Green

— *continued from page 2*

three day, two-night campout on the refuge in Native American teepees.

"Hopefully, we're developing this nation's future environmental leaders by challenging these high achieving high school students to be role models" said Jeff Rupert, Wichita Mountains Refuge manager, "and also connecting younger kids with nature."

What's next? We'd like each state in the region to have its own forum or quest for young people – each one better than the last.

Dennis Prichard is deputy refuge manager at Sevilleta National Wildlife Refuge in New Mexico.

Mineral Rights Just Below the Surface

— *continued from page 10*

least terns were nesting on an oil pad road near Lake Texoma, Blackwell, Inc. agreed to move its drilling operations off the road to avoid disrupting the terns. In another instance, an operator used directional drilling to reduce the impact on a road surface.

Another operator was adamant about drilling right in the middle of a road at a popular scenic overlook at Hagerman Refuge. The company backed off when the Service reported an important archaeological discovery there. And when Service personnel discovered a dead vulture in a pool of oil formed by a leaking well, the operator was fined substantially for violating the Migratory Bird Treaty Act and failing to properly maintain the area.

Harris is enthusiastic about the training and Cantu concurs: "It helps to know you are not alone. And you learn what's going on in different areas and how other managers address the problems."

Len Deibert is a freelance journalist in Washington, DC.

Fire Effects Monitor Craig Hoffpauir examines tank battery equipment during a site visit at last year's oil and gas course held at Hagerman National Wildlife Refuge Complex in Texas. (USFWS)

RefugeUpdate

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A Look Back . . . Grady Mann

Right There with the Potholes and Marshes

Many residents of the northern Great Plains thanked providence this spring that record floods spared their homes. They may not know it, but some are also in debt to retired U.S. Fish and Wildlife Service biologist Grady E. Mann.

Thanks in large part to Mann, some 15,000 square miles of western Minnesota marshland escaped the plow and retain a historic ability to hold runoff and support waterfowl. But 60 years ago, when Mann began seeking public support for wetland restoration, the concept drew a cold reception.

Never mind that only 138,000 acres of prairie wetlands remained of the two million estimated to have existed in the early 1800s. Few residents saw wetlands as good for much outside of crop production. The Service had its skeptics, too.

As head of the Service's first wetlands preservation office in Fergus Falls, MN, Mann set out to win over doubters. "I spent an awful lot of time working with the public and commissioners and civic groups, PTAs …until the wetland story had been told," recalls the conservationist, now 89. The former World War II tank commander spoke before Kiwanis Clubs, Rotary Clubs, Lions Clubs, church groups and local farmers. He prepared weekly radio broadcasts and went on local TV.

"I spelled out very definitely that I wanted to have that whole chunk of country there," he says, referring to the 15,000 square miles of Prairie Pothole land he mapped over several summers, "buying or taking easements on those wetlands." His aerial survey map is still used by land use experts. Mann also argued for the preservation of uplands. Marsh is important, he says, "but you had to have upland vegetation to go along with it, to make it viable" as wildlife habitat.

Slowly, the message began to stick with landowners. Today, Mann describes the preservation of the land as his proudest achievement.

What advice would he offer to those working today for wetland conservation? "Establish your priorities early in the ballgame and don't move an inch," he says.

U.S. Fish and Wildlife Service biologist Grady Mann (USFWS)

Now, as then, the former outdoorsman and canoeist appreciates the native landscape. "The only place to think is on a prairie," he once told a colleague. What did he mean? "That's just the way I'm made," he answers. "I'm not meant for an office too long. I get the key thoughts while I'm sitting right there with the potholes and marshes right around me."

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